WHAT IS CLAIMED IS:

1. A method for manufacturing a base material for an optical fiber, comprising steps of:

holding a bar material by a support member; and

adjusting to reduce a difference between an axis of the bar material and a rotational axis of the support member.

2. The method as claimed in claim 1, wherein said adjusting step includes a step of moving the axis of the bar material in a direction being perpendicular to the rotational axis of the support member.

3. The method as claimed in claim 2, wherein, in said moving step, the axis of the bar material is movable in two directions being perpendicular to each other.

4. The method as claimed in claim 3, wherein said adjusting step further includes steps of:

rotating the bar material around the axis thereof; and

measuring a distance of the bar material from a reference point during said rotating step of said adjusting step.

Ante

5. The method as claimed in claim 3, wherein said adjusting step includes a step of changing an inclination angle of the axis of the bar material with respect to the rotational axis of the support member.

6. The method as claimed in claim 5, wherein said adjusting step further includes a step of maintaining the angle which is changed in said changing step.

Impossible

7. The method as claimed in claim 6, wherein said adjusting step further includes steps of:

rotating the bar material around the axis thereof; and

measuring a distance of the bar material from a reference

point during said rotating step of said adjusting step.

8. The method as claimed in claim 7, wherein plural distances are measured from respective reference points in said measuring step.

9. The method as claimed in claim 1, wherein said adjusting step includes a step of changing an inclination angle of the axis of the bar material with respect to the rotational axis of the support member.

10. The method as claimed in claim 9, wherein said adjusting step further includes a step of maintaining the angle which is changed in said changing step.

11. The method as claimed in claim 9, wherein the axis of the bar material is freely inclinable with respect to the rotational axis of the support member in said changing step.

12. The method as claimed in claim 11, wherein the axis of the bar material is freely inclinable with respect to the rotational axis of the support member in at least two different direction in said changing step.

13. The method as claimed in claim 1, wherein said adjusting step includes a step of forming conical portions at both end portions of the base material, each of the conical portions having a rotational axis being coincide with a center of a perfect circle on a core.

14. The method as claimed in claim 13, wherein said adjusting step further includes a step of forming an orientation flat on at least one of conical portions.

15. The method as claimed in claim 1, further comprising steps of:

maintaining a position of the bar material for a predetermined period from reaching a sintering area up to a sintering temperature; and

starting a sintering process after said maintaining step.

16. The method as claimed in claim 1, further comprising a step of:

etching the base material wherein a direction of a maximum diameter of the base material with respect to a section perpendicular to the axis of the base material is perpendicular to a etchant surface.

17. A method for manufacturing a base material for an optical fiber, comprising steps of:

holding a bar material by a support member;

rotating the bar material as a unit with the support member; and

regulating a movement of the unit of the bar material and the support member, the movement being perpendicular to a direction of a rotation axis of the unit of the bar material and the support member.

18. The method as claimed in claim 17, wherein said regulating step includes a step of making a swing suppressing mechanism contact with the support member during rotating the support member.

19. The method as claimed in claim 17, wherein said regulating step includes a step of blowing a gas to the support member.

20. The method as claimed in claim 17, wherein said regulating step includes a step of blowing a gas to the bar material.

21. The method as claimed in claim 17, further comprising a step of:

forming conical portions at both end portions of the base

material, each of the conical portions having a rotational axis being coincide with a center of a perfect circle on a core.

22. The method as claimed in claim 21, further comprising a step of:

forming an orientation flat on at least one of conical portions.

23. The method as claimed in claim 17, further comprising steps of:

maintaining a position of the bar material for a predetermined period from reaching a sintering area up to a sintering temperature; and

starting a sintering process after said maintaining step.

24. The method as claimed in claim 17, further comprising a step of:

etching the base material wherein a direction of a maximum diameter of the base material with respect to a section perpendicular to the axis of the base material is perpendicular to a etchant surface.

25. A base material manufactured by the method as claimed in either one of claims 1 to 24.

26. An optical fiber base material grasping apparatus for holding a bar material having an axis, comprising:

a support member having a center axis, said support member being rotatable around said center axis; and

an adjusting mechanism for reducing a difference between the axis of the bar material and said central axis of said support member.

27. The optical fiber base material grasping apparatus as claimed in claim 26, said adjusting mechanism includes an inclination mechanism wherein said inclination mechanism is able to make the

axis of the bar material incline with respect to said central axis of said support member.

28. The optical fiber base material grasping apparatus as claimed in claim 26, said adjusting mechanism includes a moving mechanism wherein said moving mechanism is able to make the axis of the bar material move in a direction perpendicular to said central axis of said support member.

29. The optical fiber base material grasping apparatus as claimed in claim 28, further comprising:

a distance meter for measuring a distance from a reference point to the bar material.

30. The optical fiber base material grasping apparatus as claimed in claim 29, wherein said distance meter includes a laser displacement meter.

31. The optical fiber base material grasping apparatus as claimed in claim 29, further comprising plural distance meters.

32. The optical fiber base material grasping apparatus as claimed in claim 28, wherein said moving mechanism includes an X-Y stage, said X-Y stage comprising:

a body;

an X-direction ring holding the bar material;

a Y-direction ring holding said X-direction ring;

an X-direction screw rod being screwed into both of said X-direction ring and said Y-direction ring;

an X-direction guide rod having both ends wherein said X-direction guide rod penetrates through said X-direction ring and said both ends of said X-direction guide rod are supported at said Y-direction ring;

a Y-direction screw rod being screwed into both of said body and said Y-direction ring; and

a Y-direction guide rod having both ends wherein said

Y-direction guide rod penetrates through said Y-direction ring and said both ends of said Y-direction guide rod are supported at said body.

33. The optical fiber base material grasping apparatus as claimed in claim 27, wherein said inclination mechanism includes an adjustable joint, said adjustable joint comprising:

an upper clamp having a forked end, said upper clamp being connecting to said support member;

a ball being pinched between said forked end of said upper clamp;

a lower clamp having a forked end wherein said forked end of said lower clamp diagonally faces to said forked end of said lower clamp and said lower clamp connects to the bar material; and

a fastener tightening said upper clamp and said lower clamp.

34. The optical fiber base material grasping apparatus as claimed in claim 27, wherein said inclination mechanism includes:

a connecting member with which the bar material is connected to said support member;

a rotary shaft around which said connecting member is freely rotatable, said rotary shaft of said inclination mechanism being perpendicular to said center axis.

35. The optical fiber base material grasping apparatus as claimed in claim 34, wherein said inclination mechanism includes at least two rotary shafts around which said connecting member is freely rotatable.

36. The optical fiber base material grasping apparatus as claimed in claim 35, wherein an angle between each pair of said at least two rotary shafts at least one position is defined by:

$360*(2*n)$,

where n represents the number of said rotary shafts.

37. The optical fiber base material grasping apparatus as claimed in claim 34, wherein at least two of said at least two rotary shafts are positioned on a plane being perpendicular to said central axis of said support member.

38. The optical fiber base material grasping apparatus as claimed in claim 37, wherein an angle between each pair of said at least two rotary shafts at least one position is defined by:

$$360*(2*n),$$

where n represents the number of said rotary shafts.

39. The optical fiber base material grasping apparatus as claimed in claim 35, wherein at least two of said at least two rotary shafts are positioned on a plane being perpendicular to said central axis of said support member, at least one of said at least two rotary shafts is positioned on another plane being perpendicular to said central axis of said support member, an angle between each pair of said at least two rotary shafts at least one position is defined by:

$$360*(2*n),$$

where n represents the number of said rotary shafts.

40. The optical fiber base material grasping apparatus as claimed in claim 26, wherein said adjusting mechanism includes:

a locking portion at the bar material, said locking portion expanding along a direction of the axis of the bar material;

a contact portion making a contact with said locking portion wherein said contact portion presses said locking portion toward said support member in a direction almost perpendicular to the axis direction of the bar material due to own weight of the bar material.

41. The optical fiber base material grasping apparatus as claimed in claim 40, wherein said support member includes a tube portion having an inner surface, said tube portion into which one end of

the bar material is inserted with a certain margin, and wherein said contact portion of said adjusting mechanism includes a pin put between said inner surface of said tube portion and said locking portion through said tube portion.

42. The optical fiber base material grasping apparatus as claimed in claim 41, wherein said pin has a flat area making contact with said locking portion.

43. The optical fiber base material grasping apparatus as claimed in claim 42, wherein said locking portion has a slope in which an angle formed between said slope and a side surface of the axis direction of the base material is from 10 to 50 degree.

44. An optical fiber base material grasping apparatus for holding a bar material having an axis, comprising:

a support member holding the bar material, said support member having an axis around which said support member is rotatable; and

a swing suppressing mechanism wherein said swing suppressing mechanism regulates a movement being perpendicular to said axis of said support member during rotating the bar material along with said support member.

45. The optical fiber base material grasping apparatus as claimed in claim 44, wherein said swing suppressing mechanism includes a contact portion making contact with said support member during rotating said support member to suppress a swing at an opposite end to an end held by said support member.

46. The optical fiber base material grasping apparatus as claimed in claim 45, wherein said contact portion includes:

a swing suppressing plate having a hole being slightly larger than a diameter of said support member; and

a filler made of resin filled into said hole after said

support member is inserted into said hole of said swing suppressing plate.

47. The optical fiber base material grasping apparatus as claimed in claim 45, wherein said contact portion includes:

a pair of guide rollers making a contact with said support member; and

a roller holder holding said guide rollers.

48. The optical fiber base material grasping apparatus as claimed in claim 44, wherein said swing suppressing mechanism includes a gas jet portion blowing a gas to said support member.

49. The optical fiber base material grasping apparatus as claimed in claim 44, wherein said swing suppressing mechanism includes a gas jet portion blowing a gas to the bar material.